

U.S. PTO Custom r No. 25280

Case # 5392

after
re 1/9/99

Claim Amendments

1. (currently amended) An antimicrobial sol-gel film comprising at least one inorganic antimicrobial agent, wherein said film exhibits a log kill rate for *Klebsiella pneumoniae* of at least 0.5 as measured under a modified plate contact method, and wherein said film is capable of adherence to a hard surface substrate at a temperature of between 100°C and 800°C.
2. (original) The antimicrobial sol-gel film of Claim 1 wherein said film exhibits a log kill rate for *Klebsiella pneumoniae* of at least 1.0.
3. (original) The antimicrobial sol-gel film of Claim 2 wherein said film exhibits a log kill rate for *Klebsiella pneumoniae* of at least 2.0.
4. (original) The antimicrobial sol-gel film of Claim 3 wherein said film exhibits a log kill rate for *Klebsiella pneumoniae* of at least 3.0.
5. (original) The antimicrobial sol-gel film of Claim 4 wherein said film exhibits a log kill rate or *Klebsiella pneumoniae* of at least 3.5.
6. (currently amended) A hard surface substrate that exhibits a melt and/or heat distortion temperature of at least 100°C and at most 800°C, to which the sol-gel film of Claim 1 has been applied.
7. (currently amended) A hard surface substrate that exhibits a melt and/or heat distortion

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temperature of at least 100°C and at most 800°C, to which the sol-gel film of Claim 2 has been applied.

8. (currently amended) A hard surface substrate that exhibits a melt and/or heat distortion temperature of at least 100°C and at most 800°C, to which the sol-gel film of Claim 3 has been applied.

9. (currently amended) A hard surface substrate that exhibits a melt and/or heat distortion temperature of at least 100°C and at most 800°C, to which the sol-gel film of Claim 4 has been applied.

10. (currently amended) A hard surface substrate that exhibits a melt and/or heat distortion temperature of at least 100°C and at most 800°C, to which the sol-gel film of Claim 5 has been applied.

11. (currently amended) A hard surface substrate that exhibits a melt and/or heat distortion temperature of at least 300°C and at most 800°C, to which the sol-gel film of Claim 1 has been applied.

12. (currently amended) A hard surface substrate that exhibits a melt and/or heat distortion temperature of at least 300°C and at most 800°C, to which the sol-gel film of Claim 2 has been applied.

13. (currently amended) A hard surface substrate that exhibits a melt and/or heat distortion temperature of at least 300°C and at most 800°C, to which the sol-gel film of Claim 3 has been applied.

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14. (currently amended) A hard surface substrate that exhibits a melt and/or heat distortion temperature of at least 300°C and at most 800°C, to which the sol-gel film of Claim 4 has been applied.

15. (currently amended) A hard surface substrate that exhibits a melt and/or heat distortion temperature of at least 300°C and at most 800°C, to which the sol-gel film of Claim 5 has been applied.

16. (currently amended) A hard surface substrate to which a sol-gel film has been applied over at least a portion of the surface thereof at a temperature of between 100°C and 800°C, wherein the sol gel film contains at least one metal-containing inorganic antimicrobial agent, and wherein said hard surface substrate exhibits a log kill rate for *Klebsiella pneumoniae* of at least 0.5, as measured under a modified plate contact method, at said portion to which said sol-gel film has been applied.

17. (currently amended) A hard surface substrate to which a sol-gel film has been applied over at least a portion of the surface thereof at a temperature of between 100°C and 800°C, wherein the sol gel film contains at least one metal-containing inorganic antimicrobial agent, and wherein said hard surface substrate exhibits a log kill rate for *Klebsiella pneumoniae* of at least 1.0 at said portion to which said sol-gel film has been applied.

18. (currently amended) A hard surface substrate to which a sol-gel film has been applied over at least a portion of the surface thereof at a temperature of between 100°C and 800°C, wherein the sol gel film contains at least one metal-containing inorganic antimicrobial agent, and

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wherein said hard surface substrate exhibits a log kill rate for *Klebsiella pneumoniae* of at least 2.0 at said portion to which said sol-gel film has been applied.

19. (currently amended) A hard surface substrate to which a sol-gel film has been applied over at least a portion of the surface thereof at a temperature of between 100°C and 800°C, wherein the sol gel film contains at least one metal-containing inorganic antimicrobial agent, and wherein said hard surface substrate exhibits a log kill rate for *Klebsiella pneumoniae* of at least 3.0 at said portion to which said sol-gel film has been applied.

20. (currently amended) A hard surface substrate to which a sol-gel film has been applied over at least a portion of the surface thereof at a temperature of between 100°C and 800°C, wherein the sol gel film contains at least one metal-containing inorganic antimicrobial agent, and wherein said hard surface substrate exhibits a log kill rate for *Klebsiella pneumoniae* of at least 3.5 at said portion to which said sol-gel film has been applied.

21. (original) The hard surface substrate of Claim 18 exhibiting the same log kill rate after said substrate has been immersed in a heated caustic bath, having a pH level of at least 12, for 48 hours.

22. (original) The hard surface substrate of Claim 19 exhibiting the same log kill rate after said substrate has been immersed in a heated caustic bath, having a pH level of at least 12, for 48 hours.

23. (original) The hard surface substrate of Claim 20 exhibiting the same log kill rate after said substrate has been immersed in a heated caustic bath, having a pH level of at least 12, for 48 hours.